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**HERRING FISHERIES ON THE SOUTH
AND SOUTH-WEST COASTS
1971-1972.**

By

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The herring fisheries on the south and southwest coasts
1971-'72

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SOUTH COAST (COUNTIES WEXFORD, WATERFORD, CORK)

The 1971/72 winter herring fishery off the south coast began in the week ending 30 October, 1971, and ended on 23 February, 1972. The total landing of 79,792 crans was over 30,000 crans (- 28%) less than the total landed in the record previous season of 1970/71. Most of the landings were auctioned at either Dunmore East or Cobh, although small quantities on occasion were landed at Kilmore Quay, Ballycotton and Kinsale. Eighty-three boats - three more than in the 1970/71 season - took part in the fishery at various times throughout the season and landings were made on 77 days out of a possible 103.

The following table shows the monthly landing in crans for each port, compared with the previous two seasons:-

Month	1971/72			Totals		
	Dunmore East	Cobh	Others	1971/72	1970/71	1969/70
October	496	-	-	496	-	169
November	2,949	667	-	3,616	14,326	8,978
December	17,096	6,611	-	23,707	63,268	34,826
January	26,513	20,388	217	47,118	70,954	36,824
February	85	4,770		4,855	2,268	16,139
Totals: 1971/72	47,139	32,436	217	79,792		
1970/71	88,424	22,392	-		110,816	
1969/70	61,807	35,129	-			96,936

The decrease in landings was particularly apparent at Dunmore East where there was a 47% drop - while on the other hand

there was a considerable rise in the landings made at Cobh.

The landed value of all herrings was £718,128 - a decrease of £52,575 on the figure for the previous year. The demand throughout the year was very good and to a certain extent the higher prices paid compensated for the scarcity of herrings throughout the season. At no time were the boats obliged to fish under the quota system.

The average price paid per cran was £9.00 (£9.11 at Dunmore East and £8.84 at Cobh). This represented an increase of £2.03 per cran on the average for 1970/71. The total landings, the landed value and the average price paid for the last five seasons were as follows:-

<u>Season</u>	<u>Total Landings (Crans)</u>	<u>Value (£)</u>	<u>Average Price</u> £
1971/72	79,792	718,128	9.00
1970/71	110,816	770,703	6.95
1969/70	96,936	544,670	5.60
1968/69	70,781	353,905	5.00
1967/68	63,343	253,372	4.00
<u>Total international catch</u>			

Since 1951 considerable variation has taken place in the total catch taken by all nations participating in this fishery. There have been two periods of high catches, one from 1958 to 1960 and the other from 1966 to 1971. The total catch has ranged from about 3,000 tons in 1951 to a maximum of 47,000 tons in 1969. Since 1969 the total catch taken by the Dutch and Irish fleets has fallen considerably. In Fig. 1, the catches made by all nations and by the Irish fleet are shown in metric tons (1 ton = 5.83 crans).

Disposal of Catch

The trend, which has become apparent in recent years whereby more herrings are processed or partly processed at home, prior to being exported, was continued throughout the season, and the amount of herrings placed directly on to luggers for direct shipment to the Continent continued to decline. Approximately 31,000 cran was barrelled ashore. Considerable quantities of herrings were frozen whole or roughpacked and barrelled, while smaller quantities were exported fresh or cured in more

sophisticated ways. The number of countries to which herrings were directly exported continued to increase and included Austria, Belgium, Denmark, Federal Republic of Germany, France, Israel, The Netherlands, Norway, Poland, Sweden and United Kingdom. As usual the amount of herrings consumed on the home market was negligible. No herrings were reduced for fishmeal or as food for trout or mink. The following are the approximate figures (crans) for the disposal of the catch and the countries to which it was exported.

Disposal of Catch

	Ireland	U.K.	Holland	West Germany	Belgium	Norway	France	Poland	Total	Unsold	(as yet)
Fresh (whole)	500	7516	8277		675		406		17374		17374
Rough Packed (whole)		3994	35620	259	121	2010	105	2351	44460		44460
Spiced and Sugared						200			200		
Frozen (whole)			8065	4236	1174		764		14239	2551	16790
Others - (v cuts)				1176					1176		1176
Total	500	11510	51962	5671	1970	2210	1275	2351	77449	2551	80000

Generally speaking the location of the fishery has not altered very much in recent years, the main centres of fishing being in Baginbun Bay, south of Dunmore East, Ballycotton Bay, south of Capel Island and around the Daunt Rock (south west of Cork Harbour). The 1971/72 season opened early, when shoals were located in Baginbun Bay towards the end of October. However, subsequent to this, during the whole of November and the first three weeks of December fishing was very poor and only light scattered markings were reported over a large area extending from west of Kinsale Harbour to the Keragh Island in Baginbun Bay. No substantial shoals were located until 23 December when good fishing took place south of Baginbun

Head and off Ballycotton. Fishing continued in these areas until early in January, when further shoals were located south of Hook Head, where they remained until spawning occurred around 20-22 January. No further shoals were located afterwards in the Dunmore East area. In mid-January shoals were located near the Daunt Rock and good catches were taken from this area and from off the Sovereign Rocks (near Oysterhaven, Co. Cork) until the end of January. Bad weather continuously interrupted fishing during February and only isolated landings were made from the Daunt Rock area until 23 February when the season came to an end. (See Fig. 2. for areas mentioned in text.)

Landings per type of gear.

The majority of herrings landed throughout the season was taken by boats using paired midwater trawls; the number of pairs engaged in this type of fishing being thirty four compared with twenty nine in the previous season. Once again the landings made by boats using bottom trawls declined, the amount taken by this particular method of fishing being less than 3,000 cran. Very few herrings appeared in the traditional grounds for bottom trawlers and consequently their activities were curtailed for the greater part of the season. Landings per type of gear for the last three seasons were as follows:-

Type of gear	1971/72	1970/71	1969/70
	<u>Crans</u>	<u>Crans</u>	<u>Crans</u>
Paired midwater trawls	77,094	95,877	71,046
Single midwater trawls	-	-	200
Bottom trawls	2,698	14,939	25,690
Total	79,792	110,816	96,936

Catch per effort

As indicated in the report for 1970/71, the average catch per night's fishing (i.e. the catch per effort) is taken as an indication of the total stock available. When this is

compared from season to season it is possible to tell how the stock is reacting to the fishing rate to which it is being subjected. The average catch per effort (average number of crans per night's fishing) for the different types of gear are shown below for the last six seasons.

Season	All South Coast herring trawls		Paired midwater trawls only	
	Bottom trawl (crans)	Paired midwater trawls (crans)	Cobh (crans)	Dunmore East (crans)
1971/72	30.5	67.7	83.8	59.3
1970/71	37.3	114.3	103.2	118.2
1969/70	35.5	111.8	138.3	94.1
1968/69	54.4	109.6	127.6	85.4
1967/68	49.2	99.0	122.3	86.1
1966/67	35.0	92.3	-	92.3

These figures show that there has been a dramatic drop in the catching rate of the fleet, in spite of improved fishing efficiency, increased horsepower, greater carrying capacity and more sensitive detecting instruments, thus indicating that the available stock has declined considerably. The seasons of greatest abundance were 1969/70 and 1970/71 and these in fact coincided with the years of the biggest landings. A more detailed examination of the 1971/72 figures shown below suggests that herrings were present in considerable amounts only in January while the amounts available during November and December, particularly off Dunmore East were very small.

Month	Average number of crans per night's fishing		
	Bottom trawl	Paired Midwater (Dunmore East)	Paired Midwater (Cobh)
October	27.0	97.0	-
November	30.0	22.6	20.8
December	24.6	51.1	91.8
January	36.0	82.3	105.6
February	-	85.0	52.9

Effort

Once again the effort (i.e. the number of nights fished by a pair of midwater trawlers) has risen considerably. If we assume that the total catch during the last six seasons had all been taken by midwater trawlers we can estimate the theoretical number of fishing nights which would require to be fished to land the total catch. This is done by dividing each season's total catch by its corresponding catch per effort. The figures are as follows:-

Season	Total Catch (crans)	Catch per effort (crans)	Effort (number of nights)
1971/72	79,792	67.7	1,179
1970/71	110,816	114.3	970
1969/70	96,936	111.8	867
1968/69	70,781	109.6	646
1967/68	63,643	99.0	643
1966/67	47,560	92.3	515

This increase in effort coupled with the decreased catch per effort and the increased catching power of the fleet show clearly that the fishery as a whole, is no longer working on a rational basis. The reason for this is that the total stock available has now dropped considerably and it is probable that the total catch for 1971/72 could have been taken by half the fleet fishing under optimum conditions.

Scientific Investigations.

Samples of herrings, consisting of 2,641 fish, were examined for length, sex, maturity and age from Dunmore East and Cobh throughout the main season. Racial investigations were also carried out and fat content, numbers of herrings per kilogramme and the incidence of infestation with the parasitic nematode worm Anasakis sp. were also studied.

Length and Age.

The majority (78%) of all fish landed at Dunmore East were either three, four or five-year-old. However, the age

distribution of those fish landed at Cobh was considerably different and was dominated by five-year-old fish, followed by six-year-old and four-year-old fish. In the following table the age distribution for the whole fishery is expressed as crans per nights fishing for the last six seasons.

Age in years (crans per midwater trawler landing)

Season	2	3	4	5	6	7	8	9	10	10	Total
1971/72	6.4	11.8	14.3	18.0	7.6	4.2	2.4	1.8	0.3	0.7	67.5
1970/71	0.8	41.6	40.1	13.5	8.8	4.7	2.6	0.9	0.6	0.7	114.3
1969/70	5.6	52.4	22.6	13.3	7.2	6.7	2.0	0.7	0.5	0.7	111.7
1968/69	6.2	39.6	26.1	8.1	20.3	2.8	2.2	0.8	1.3	2.3	109.7
1967/68	9.0	41.7	12.2	19.8	4.6	4.2	2.1	3.2	1.1	1.2	99.1
1966/67	7.3	21.2	34.21	6.1	8.9	3.6	2.5	5.7	0.9	1.7	92.1

As can be seen from the table, the number of fast growing two-year-old fish which entered the fishery was substantial. This was particularly noticeable at Dunmore East during late January and February when the presence of these small herrings adversely affected the quality of the general run of herrings. However, the main recruitment to the fishery is based on three year-old fish and the strength of this particular age group was the weakest since 1966/67. As had been mentioned in previous reports the fishery depended too heavily on the appearance of this age group to maintain its high catching rate and its appearance below normal strength during the 1971/72 season led to the decreased catches. A comparison of the age distributions of 1970-1972 shows that the total mortality of the stock was approximately 75%. Since this was generated by a total catch of 25,000 tons in 1971/72 the total stock left at the end of the season was estimated to be around 8,000-10,000 tons. This, in addition to what will be recruited during the Summer of 1972 will determine the stock available for next season and unless the recruitment is abnormally heavy the prospects for the 1972/73 season are not good.

Maturities.

Herrings landed throughout the season were generally in stage VI maturity. Very few full clean herrings (stage V) were taken while small quantities of "spents" (stage VII) appeared at various times. Spawning took place on a number of occasions throughout the season, but because of weather conditions it was not possible to determine the exact times as accurately as in previous seasons. However, the main spawning occurred south of Hook Head on the 20-21 January with smaller groups spawning in Baginbun Bay on 9 and 25 November. Some spawning appeared to take place off Ballycotton on 4 January but it was not possible to determine any peak spawning period for the herrings from the Daunt Rock area.

Condition of fish.

The fat content of herrings was examined continually throughout the season. The method used was that which implies a relationship between the moisture content of fillets and the fat content, the formula being:-

$$\text{Fat content} = 180 - \text{moisture content (\%)}$$

Generally speaking during 1971/72 the average fat content was lower than in previous years - a fact which may be attributed to the generally very spawney conditions of the herrings or possibly to poor feeding conditions during the summer of 1971. The number of fish per kilogramme ranged from 4.5 to 5.9 during the season and while the average size was satisfactory for herrings landed at Cobh, considerable numbers of small fish were present in the catches landed at Dunmore East during the post-Christmas period. The average fat content and the average number of fish per kilogramme per month are shown below (the monthly range being shown in brackets).

Month	Fat Content (%)		Numbers per kg.	
	Dunmore East	Cobh	Dunmore East	Cobh
November	10.3 (8.0-12.0)	-	5.0 (4.5-5.4)	-
December	9.8 (7.0-12.0)	-	5.1 (4.6-5.7)	-
January	6.8 (6.0- 8.0)	6.7(6.0- 8.0)	5.3 (5.0-5.9)	4.5(4.3- 4.7)
February		5.0(5.0)	-	4.4(4.4)

SOUTH-WEST COAST (AUGUST-OCTOBER, 1971)

The autumn herring fishery carried out by boats mainly from Castletownbere, Dingle and Schull opened in the third week of August and continued until mid-October. Herrings were generally scarce throughout the period and weather conditions were unfavourable on a number of occasions. The majority of herrings were landed at either Castletownbere or Dingle and the landings at each port were as follows:-

Port	Crans (1971)	Crans (1970)
Castletownbere	3,692	4,008
Baltimore	80	1,641
Dingle	844	158
Total	4,616	5,807
Value	£34,490	£38,000

Most of the herrings landed were taken by boats using paired midwater trawls, although smaller amounts were also taken by drift nets and by boats engaged in "white fish" fishing using bottom trawls. It is of interest and important to note that considerable quantities of good quality mackerel were taken by the midwater trawlers during September and October. Although the total quantity of herrings landed was slightly less than the previous year the value was considerably more and the average price per cran, £7.47, was £0.93 higher than that paid in 1970.

The greater portion of the total landings were frozen whole before being exported to the Continent. Smaller quantities were exported fresh to Britain or rough packed for France and Holland. Some small herrings, approximately 320 crans, which were not fit for processing were reduced for fishmeal.

Fishing throughout this period was confined to the area around Dursey Island and in Bantry Bay, while the boats operating from Dingle fished the "New Ground" in Dingle Bay. No herrings were located on the spawning grounds around the Stags of Baltimore.

Effort and Catch per effort: The total catch taken by midwater boats landing at Castletownbere was 3,492 crans, while the effort was 99 nights fishing. The figures for the five years, 1967/1971 are as follows:

<u>Year</u>	<u>Paired midwater catch</u> <u>Crans</u>	<u>Effort</u> <u>(Landings)</u>	<u>Catch/effort</u> <u>Crans</u>
1967	2,238	54	41.4
1968	2,141	44	48.7
1969	3,010	29	103.8
1970	4,179	47	88.9
1971	3,492	99	35.3

As has been said in previous reports, the total stock in this area appears to be comparatively small. It is very much affected by the number of boats fishing during the season, the catching rate decreases very rapidly as the effort increases.

Scientific investigations:

Scientific investigations were carried out on a rather restricted scale during September at Castletownbere. During this period the fish examined belonged to two races viz. autumn spawners and winter spawners. Most of the large full herrings belonged to the autumn spawning component while the small fish belonged to a mixture of both races. The age distribution showed that the majority of the adult stock were four and five-year-old fish, while the young immature fish caught in the bottom trawls were mostly two-year-old fish. The following is the age distribution for the 1969, 1970 and 1971 seasons, expressed in crans per midwater trawler landing:-

<u>Year</u>	<u>Age in years</u>										Total
	2	3	4	5	6	7	8	9	10	10+	
1969	16.4	29.8	13.2	21.1	5.8	12.9	2.9	0.8	0.3	0.6	103.8
1970	4.4	49.3	10.9	4.7	3.6	6.4	5.7	2.4	0.3	1.2	88.9
1971	1.1	3.9	15.5	6.7	1.4	3.2	2.5	0.4	0.4	-	35.3

The recruitment of three-year-old fish into the main autumn spawning component appears to be very low. However, the recruitment mechanism for this area has not yet been properly established and it is not known what proportion of the young fish, taken by the bottom trawlers, would eventually recruit to the adult autumn spawning population.

Fat content and numbers per kilogramme

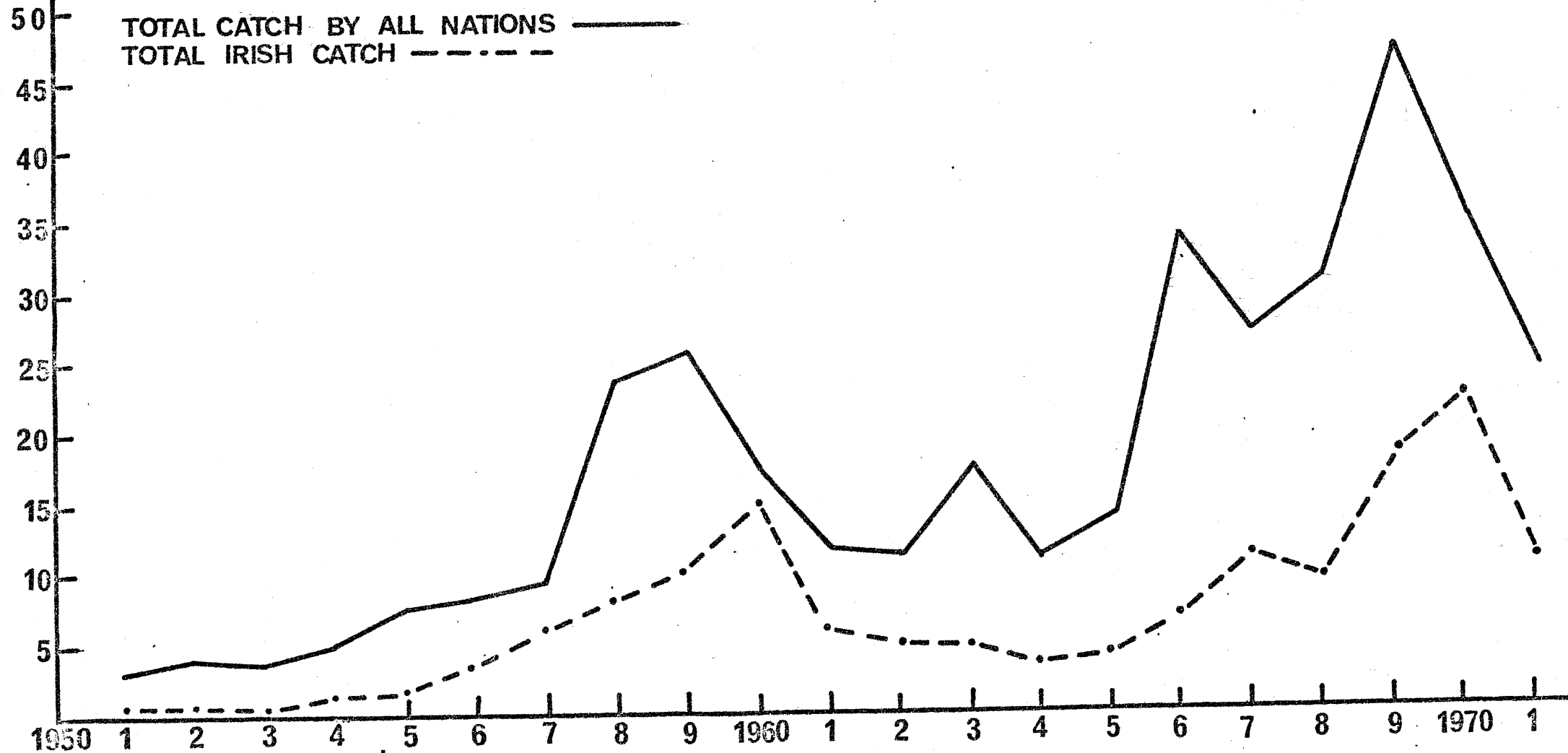
Samples obtained in July to September had the following fat content and numbers of herring per kilogramme:

<u>Month</u>	<u>Fat Content %</u>	<u>No/kg.</u>	<u>Source</u>
July	16.5	10.8	Bottom trawl
August	16.0	9.7	Bottom trawl
August	14.0	9.9	Bottom trawl
September	18.0	4.1	Midwater trawl
September	17.0	4.4	Midwater trawl

Acknowledgment

The co-operation and assistance of the South and East Coasts Fishermens Association, the Castletownbere Fishermens Association and various fishermen and merchants is gratefully appreciated and acknowledged.

THOUSANDS OF METRIC TONNES



YEAR.
FIG. 1.

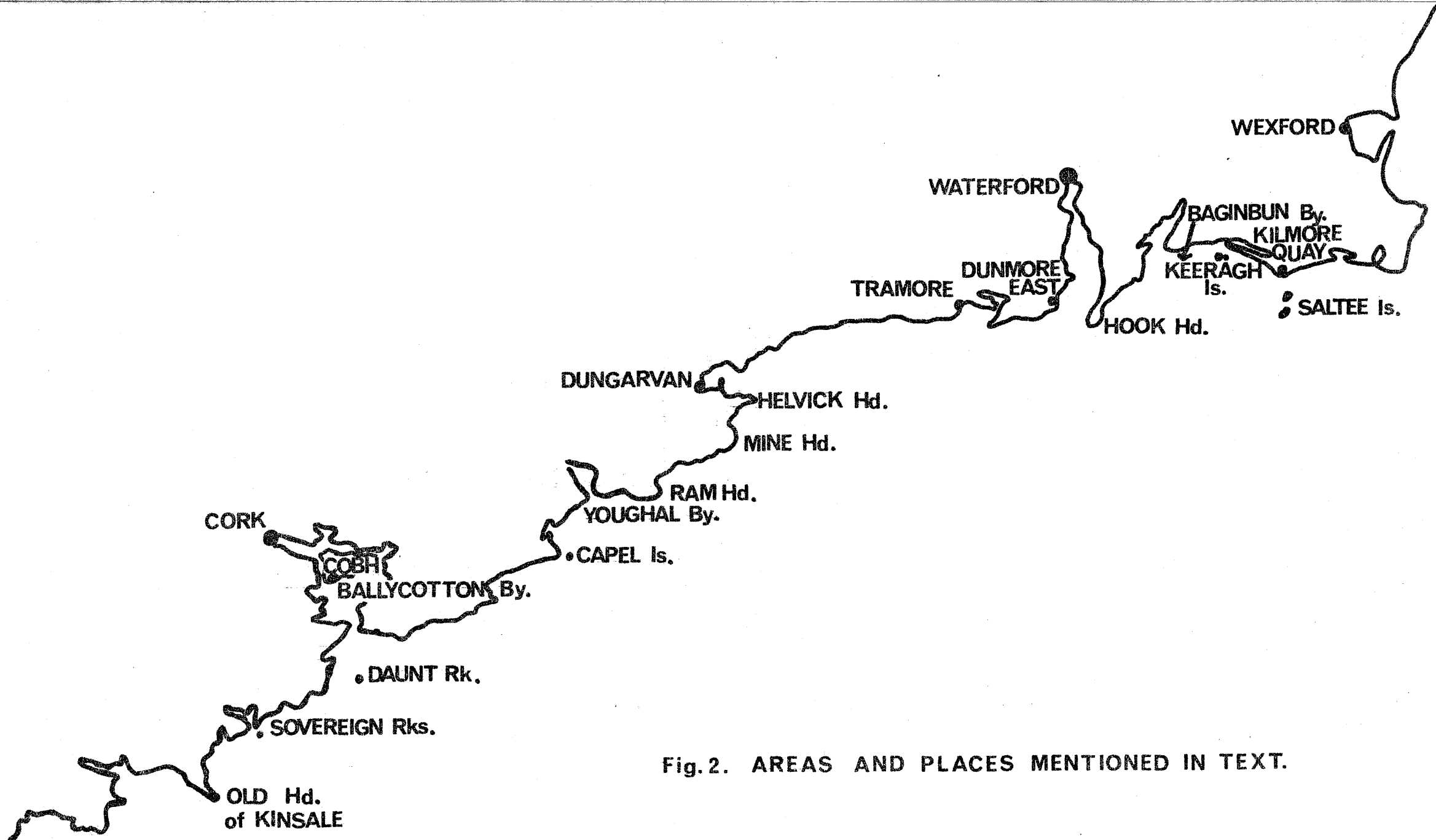


Fig.2. AREAS AND PLACES MENTIONED IN TEXT.